

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/720,206	05/03/01	GUY	P 82402-3801

ADE & COMPANY
1700 360 MAIN STREET
R3C 3Z3 WINNIPEG MANITOBA
CANADA

HM22/0731

AIR MAIL

EXAMINER
CHUNDURU, S

ART UNIT	PAPER NUMBER
1656	

DATE MAILED: 07/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/720,206	GUY ET AL.	
	Examiner	Art Unit	
	Suryaprabha Chunduru	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-23, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) 22-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-21, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Restriction/Election

1. This application is a 371 of PCT/CA99/00587. For applications filed under 371, PCT rules for lack of unity apply. The European Search Report indicates lack of unity of the invention. Hence the Restriction requirement for the instant claims is proper.
2. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in response to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 16-21 and 26-27, drawn to a method of improving agronomic properties of a plant and selecting the seeds.

Group II, claim(s) 22-23, drawn to a method of performing skin grafts and transplanting an organ.

The inventions are independent and patentably distinct each from the other because of the following reasons:

Inventions in Group I and Group II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the invention in the method steps of Group I are materially different from the method steps in Group II in the mode of operation. Further the biological functionality of the invention in Group I materially differs from the biological functionality of the invention in Group II.

Invention in Group I is independent and patentably distinct from invention in group II because the method steps in Group II are not needed to practice the invention in Group I.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Attorney Michael R. Williams (applicant's representative) on July 26, 2001 a provisional election was made to prosecute the invention of Group I, claims 16-21 and 26-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 22-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

3. Applicant's election of Group I (claims 16-21 and 26-27) without traverse is acknowledged. These claims are considered for examination in this office action. Claims 22-23 of Group II are withdrawn.

4. The Preliminary Amendment (Paper No. 5) and the Information Disclosure Statement (Paper No. 6) filed on July 9, 2001 have been entered and considered.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

a) Claims 16-21 and 26-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Bailey et al. (USPN. 5,959,187).

Bailey et al. teach a method for improving the agronomic properties of a plant wherein Bailey et al. disclose that the method comprises transforming a plant and providing a regenerated plant with increasing intracellular oxygen-binding protein (for example hemoglobin, leghemoglobin etc.) and the oxygen binding proteins suitable for the method includes high k_{off} globin proteins such as virreosilla hemoglobin or relatively low oxygen affinity globin proteins such as horse heart myoglobin (see column 3, lines 13-38, column 4, lines 30-67, and column 19, lines 4-15 (claim 16)). Bailey et al. also disclose that the improved agronomic properties include rapid germination, improved vegetative yield (seedling vigour) and high levels of secondary metabolites whose production is oxygen sensitive (fermentation products) (see column 4, lines 30-44 and column 19, lines 4-15). Further Bailey et al. disclose that (i) the generation of plants with improved agronomic characteristics include metabolically engineering an increased oxygen level or increased utilization (uptake) of oxygen (see column 3, lines 13-16); (ii) increased drought tolerance (hypoxic conditions) (see column 6, lines 28-38); (iii) the transformed plants and their progeny are selected or screened (to use in plant breeding) plants that express the desired protein or altered expression of the oxygen binding protein which has the agronomic characteristics by the procedures well know in the art (see

column 6, lines 2-19 and column 8, lines 4-20). Thus the disclosure of Bailey et al. meets the limitations in the instant claims 16-21 and 26 and 27.

b) Claims 16-21 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Bailey et al. (WO 98/12913).

Bailey et al. teach a method for improving the agronomic properties of a plant wherein Bailey et al. disclose that the method comprises transforming a plant and providing a regenerated plant with increasing intracellular oxygen-binding protein (for example hemoglobin, leghemoglobin etc.) and the oxygen binding proteins suitable for the method includes high k_{off} globin proteins such as virreoscilla hemoglobin or relatively low oxygen affinity globin proteins such as horse heart myoglobin (see page 4, lines 10-18, page 6, lines 19-33, page 7, lines 5-18 and page 30, claims 15-16, lines 10-21). Bailey et al. also disclose that the improved agronomic properties include rapid germination, improved vegetative yield (seedling vigour) and high levels of secondary metabolites whose production is oxygen sensitive (fermentation products) (see page 6, lines 19-33). Further Bailey et al. disclose that (i) the generation of plants with improved agronomic characteristics include metabolically engineering an increased oxygen level or increased utilization (uptake) of oxygen (see page 4, lines 10-18); (ii) increased drought tolerance (hypoxic conditions) (see page 9, lines 19-22); (iii) the transformed plants and their progeny are selected or screened (to use in plant breeding) plants that express the desired protein or altered expression of the oxygen binding protein (hemoglobin) which has the agronomic characteristics by the procedures well known in the art (see page 11, lines 12-21, page 12, lines 15-33, page 13, lines 6-15). Thus the disclosure of Bailey et al. meets the limitations in the instant claims 16-21 and 26 and 27.

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 703-305-1004. The examiner can normally be reached on 8.30A.M. - 4.30P.M, Mon - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on 703-308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0294 for regular communications and - for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

^{spe}
Suryaprabha Chunduru
July 27, 2001


JEFFREY FREDMAN
PRIMARY EXAMINER